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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,504	09/30/2003	Chang-Ho Liou	LIOU3009/EM	1665
2292 7590 11/15/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER XIAO, KE	
			ART UNIT 2629	PAPER NUMBER
			NOTIFICATION DATE 11/15/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/673,504	Applicant(s) LIOU, CHANG-HO	
	Examiner Ke Xiao	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Admitted Prior Art (AAPA) in view of Bowen (US 6,774,868)

Regarding independent **Claim 1**, the AAPA teaches a gate drive device for a liquid crystal display (AAPA, Fig. 2A element 11), the open sequences for a plurality of scan lines in a panel being changed so that open sequences of the plurality of scan lines between two adjacent gate drivers being the same (AAPA, Fig. 2B), the drive device comprising:

a display panel being divided up into a plurality of division panels (AAPA, Figs. 2A and 2B);

a plurality of gate drivers being the gate drivers of the plurality of division panels (AAPA, Fig. 2A element 11);

a plurality of control circuits for connecting the data drivers and the gate drivers of the plurality of division panels (AAPA, Fig. 2A, 20a and 20b); and

a timing control register connected to the plurality of control circuits by a plurality of control lines (AAPA, Pg. 1 paragraph [0002]);

wherein the timing control register is used for controlling the open timings of the scan lines of the plurality of division panel, the scan lines in the joining portions of the plurality of upper-lower adjacent division panels are opened at the same time, and wherein the open timings of the scan lines in the joining portions of the plurality of upper-lower adjacent division panels are the same (AAPA, Fig. 2B).

The AAPA fails to teach that adjacent scan lines timing are the same as claimed. Bowen teaches a liquid crystal display system where adjacent scan lines in the joining portions of the plurality of upper-lower adjacent division panels are opened at the same time, and wherein the open timings of the adjacent scan lines in the joining portions of the plurality of upper-lower adjacent division panels are the same (Bowen, Fig. 5, Col. 6 lines 33-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to implemented the tiling and opposite scanning system of Bowen in the display device of the AAPA in order to allow for large tiled displays with minimal adverse visual effects (Bowen, Col. 3 lines 1-8, Col. 6 lines 33-49).

Regarding **Claim 3**, the AAPA in view of Bowen further teaches that the open timings of scan lines of the plurality of left-right adjacent division panels are the same (Bowen, Fig. 5).

Regarding **Claim 4**, the AAPA further teaches that the timing control register is used for temporarily storing the image starting signals of the display panel (AAPA, Pg. 1 paragraphs [0002, 0008]).

Regarding **Claim 5**, the AAPA further teaches that the gate drivers are connected to the plurality of scan lines of the display panel for controlling (AAPA, Fig. 2A elements 11 and 13).

Regarding **Claim 6**, the AAPA teaches a gate drive device for a display (AAPA, Fig. 2A element 11), the open sequences for a plurality of scan lines in a panel being changed so that open sequences of the plurality of scan lines between the two adjacent gate drivers being the same (AAPA, Fig. 2A), the drive device comprising:

- a display panel comprising:
 - a first division panel comprising (AAPA, Fig. 2A, 10a):
 - a first side (AAPA, Fig. 2A, 10a bottom side);
 - a second side vertical with the first side (AAPA, Fig. 2A, 10a right side);
 - a first scan line parallel with the first side (AAPA, Fig. 2A, 13a bottom scan line); and
 - a second scan line parallel with the first scan line (AAPA, Fig. 2A, 13a top scan line);
 - a second division panel comprising (AAPA, Fig. 2A, 10b):
 - a third side parallel and adjacent with the first side (AAPA, Fig. 2A, 10b top side);

a fourth side vertical with the third side (AAPA, Fig. 2A, 10b right side);
a third scan line parallel and adjacent with the first scan line (AAPA, Fig. 2A 10b top scan line); and

a fourth scan line parallel with the third scan line (AAPA, Fig. 2A 10b bottom scan line); and

a plurality of gate drivers being the gate drivers of the first and second division panels (AAPA, Fig. 2A, 11a and 1b);

a plurality of control circuits for connecting the data drivers and the gate drivers of the first and the second division panels (AAPA, Fig. 2A element 20a and 20b); and

a timing control register connected to the plurality of control circuits by a plurality of control lines (AAPA, Pg. 1 paragraph [0002]).

The AAPA fails to teach a third and fourth divisions of the display as well as the opening timings of the scan lines as claimed.

Bowen teaches the following:

a third division panel (Bowen, Fig. 4 element 404) comprising:

a fifth side (Bowen, Fig. 4 element 404 bottom side);

a sixth side vertical with the fifth side and adjacent with the second side (Bowen, Fig. 4 element 404 left side);

a fifth scan line parallel with the fifth side (Bowen, Fig. 4 element 404 bottom scan line); and

a sixth scan line parallel with the fifth scan line (Bowen, Fig. 4 element 404 top scan line); and

a fourth division panel (Bowen, Fig. 4 element 408) comprising:

a seventh side parallel and adjacent with the fifth side (Bowen, Fig. 4 element 408 top side);

an eighth side vertical with the seventh side and adjacent with the fourth side (Bowen, Fig. 4 element 408 left side);

a seventh scan line parallel and adjacent with the fifth scan line (Bowen, Fig. 4 element 408 top scan line); and

an eighth scan line parallel with the seventh scan line (Bowen, Fig. 4 element 408 bottom scan line); and

the open timings of the first, the second, the third, the fourth, the fifth, the sixth, the seventh and the eighth scan lines, at a first period, the first, the third, the fifth and the seventh scan lines are opened at the same time, and at a second period following the first period, the second, the fourth, the sixth and the eighth scan lines are opened at the same time (Bowen, lines 1, 3, 5 and 7 are scanned last in a single frame period which can be considered a first period, and the next frame period which is the second period after the first period will start with scanning of lines 2, 4, 6 and 8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the tiling and opposite scanning system of Bowen in the

display device of the AAPA in order to allow for large tiled displays with minimal adverse visual effects (Bowen, Col. 3 lines 1-8, Col. 6 lines 33-49).

The AAPA in view of Bowen teaches the following:

a plurality of gate drivers being the gate drivers of the first, the second, the third, and the fourth division panels (AAPA, Fig. 2A element 11 and Bowen Fig. 4);

a plurality of control circuits for connecting the data drivers and the gate drivers of the first, the second, the third, and the fourth division panels (AAPA, Fig. 2A element 20 and Bowen Fig. 4); and

a timing control register connected to the plurality of control circuits by a plurality of control lines (AAPA, Pg. 1 paragraph [0002], Bowen Fig. 4);

wherein the timing control register is used for controlling the open timings of the first, the second, the third, the fourth, the fifth, the sixth, the seventh and the eighth scan lines, at a first period, the first, the third, the fifth and the seventh scan lines are opened at the same time, and at a second period following the first period, the second, the fourth, the sixth and the eighth scan lines are opened at the same time (AAPA, Pg. 1 paragraph [0002], Bowen Fig. 4).

Response to Arguments

Applicant's arguments filed August 27th, 2007 have been fully considered but they are not persuasive. The applicant argues that the combination of the AAPA in view of Bowen is improper because the prior art deals with a liquid crystal display system and Bowen teaches a projection display system. The examiner respectfully disagrees. Bowen also teaches that the scanning technique can be applied to liquid crystal display systems as cited above. Additionally the applicant states that since the applicant and Bowen solve different problems that Bowen is not combinable with the AAPA. The examiner respectfully disagrees. The AAPA is clearly a tiled display system as shown by the separate display panels as well as the separate driving devices. Bowen's invention is directed at solving uniformity problems having to do with tiled display systems, therefore it would have been an obvious combination.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571) 272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

October 29th, 2007 - kx -


SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER